

ABSTRACT OF THE INVENTION

A method and apparatus for significantly reducing the biological load on consumer products such as food products, botanicals, cosmetic ingredients and medical products is disclosed. The method involves applying a continuous stream of oxygen-containing, i.e., O_x, gas to a material in a sealed biological burden reduction chamber. The continuous stream of O_x gas is prepared in an O_x generation cell, which contains a means for generating the O_x gas at a pressure less than 20 lbs/in² using, for example, one or more of the following: corona discharge, high frequency electrical discharge, ultraviolet light, x-ray, radioactive isotope and electric beam. The apparatus contains:

- (a) a biological burden reduction chamber;
- (b) a vacuum pump coupled to the biological burden reduction chamber;
- (c) an O_x generation cell, wherein the O_x generation cell contains an O_x generator capable of generating O_x at a pressure less than 20 lbs/in²;
- (d) a first control valve coupled to the biological burden reduction chamber and the O_x generation cell, wherein the first control valve is capable of permitting O_x to be drawn from the O_x generation cell into the biological burden reduction chamber; and
- (e) a second control valve coupled to the biological burden reduction chamber, wherein the second control valve is capable of withdrawing O_x contained within the biological burden reduction chamber.